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Anthus spragueii. Four seen.

Thryothorus ludovicianus. One seen.

Thryothorus bewickii. One seen.

Turdus fuscescens. One seen.

Turdus aonalaschkae pallasi. Not common.

This is a prairie country and many of the birds named in Mr. Drew's list are not found here.—P. M. THORNE, CAPT. 22d INF'TY, U. S. A., *Fort Lyon, Col.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

Individual Variation in the Skeletons of Birds, and other matters.

TO THE EDITORS OF THE AUK:—

Dear Sirs:—Before saying anything about the individual variation in the skeletons of birds, allow me to pass a few remarks upon the letters of Dr. Stejneger and Mr. Lucas, which appeared in the last issue of 'The Auk' (April, 1887), and wherein I am called upon to hold up my hands for a number of sins. Dr. Stejneger is quite correct in calling me to account for saying that 'such forms as *Picus*' were birds with a 'two-notched' sternum; all Woodpeckers have *four* notches in their sternums, as we well know, and I must be pardoned for making such a *lapsus calami* or *lapsus memoriae*, whichever it was. When Dr. Stejneger asks the question, however, with respect to the Swifts and Hummingbirds, and says, "What in the nature of these birds' flight has brought about such an extraordinary similarity, osteologically, myologically, and pteryographically in the wing-structure of the Swifts and Hummingbirds, as compared with that of the Swallows?"—it's another matter. And so far as the *osteology* of the wing-structure of a Swift and a Hummingbird is concerned and their "extraordinary similarity," I would simply invite Dr. Stejneger's attention to a short paper of mine in a recent issue (the April number, 1887, I believe) of the 'Proceedings' of the Zoölogical Society of London, wherein I have figured the *humerus* for a Swallow, Swift and a Hummingbird, and ask him where the "extraordinary similarity" comes in, in *that* part of the wing-structure of the last two forms mentioned?

As to the other extraordinary similarities I will dwell upon them in another connection, later.

Mr. Lucas's letter requires no special notice, for I must still plead *not guilty* to the charge of having published an "imperfect" drawing of the base of the skull of *Tachycineta thalassina*, and that is the sole point of

issue in his communication worthy of consideration. To those who saw Mr. Lucas's reproduction of the handsome woodcut the P. Z. S. gave me of my drawing of the structure in question, nothing need be said. But to those who have not yet had that pleasure permit me to say a word in my own defence. It will be remembered by those who have read this discussion, that Mr. Lucas claimed that my figure, just referred to is "imperfect" from the fact that the *maxillo-palatines* are *broken off*. My figure appeared in the P. Z. S. for 1885 (Dec. 1, p. 899, fig F.), and Mr. Lucas's purported copy of it appeared in 'Science' (No. 223, p. 461, fig. 1), some time after my original memoir appeared.

Now it was my intention, at first, to present here photographic copies of my drawing and Mr. Lucas's copy of it, in order to show, what I am afraid I must say, the unfair manner in which he has acted in the premises in order to support his views.

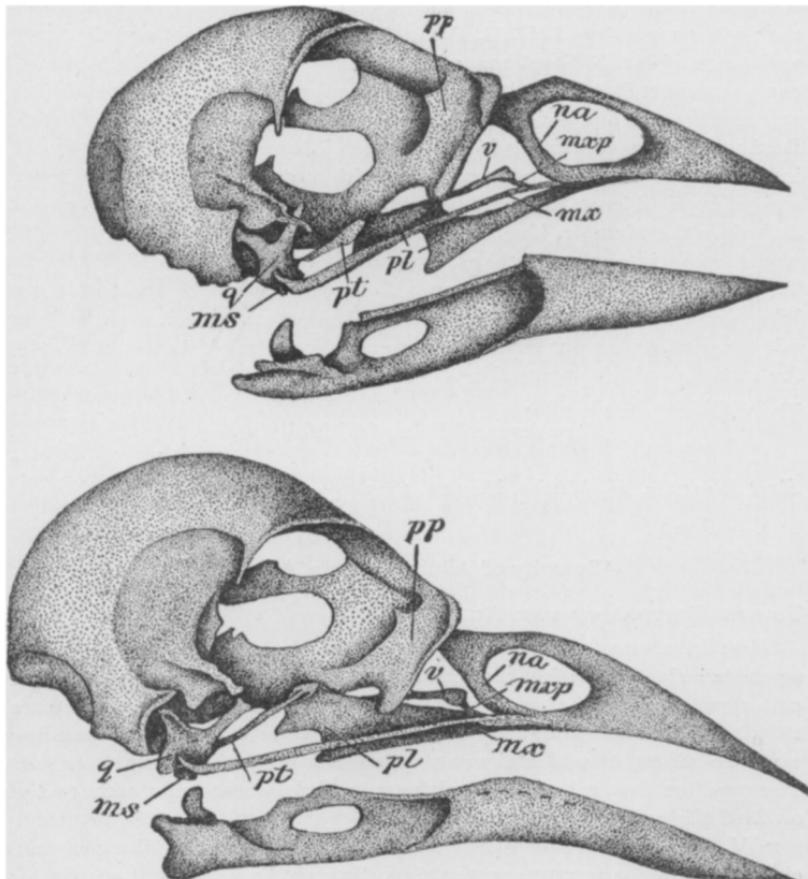
But space in 'The Auk' is far too valuable in my estimation to further argue the point,—and I will only say that in the copy (?) which Mr. Lucas made and published of my drawing the *backward-turned ends* of the maxillo-palatines have been *removed*, which ends are shown in my original drawing, small though they be. With this brief remark I close my case, and it will not be resumed by me under any circumstances; no one welcomes honest criticism more heartily than the writer,—but is that honest criticism?

Speaking now of the individual variation in the skeletons of birds I would like to reproduce here, in illustration of it, a pair of skulls which figured in an article of mine in 'Science' not long ago. As many readers of the 'The Auk,' both at home and abroad, possibly may not subscribe for that estimable journal, I was led to believe that in bringing these drawings more directly before ornithologists, many of them could not fail to find something of interest in them.

These each represent a skull ($\times 2$) of the Yellow-headed Blackbird (*X. xanthocephalus*), the specimens having been collected by myself, and are now in my possession. We are very well aware that throughout animate nature, all specific forms vary more or less, and that the corresponding structures of any two species are never quite alike, either in form or size. So far as birds are concerned, I think it would be hard to find a pair of skulls, that would better show, taking this part of their organization into consideration, how great this variation may be sometimes. It is very evident that an *exact* description of one of these skulls would not answer for the other, notwithstanding that they are both from birds of the *same species*,—yet a *general* description could be written that would fully cover all their salient features, and sufficiently differentiate them from descriptions of the skulls of other birds.

With respect to *measurements* and exact descriptions, however, for any structure, for any particular species of bird, we are in the same quandary in our accounts of such structures among the lower vertebrates as the anthropotomists are with respect to descriptive human anatomy. Much might be written about these two skulls here figured which lack of space forbids, but this will not debar the thoughtful ornithotomist from making

a careful study of them for himself. One thing it must point out to all, and that is, for our descriptions of such structures to be broad and full we should have before us, whenever it is possible, *abundance of material*,—and, too, with respect to measurements, we should aim to establish reliable *standards* through the calculation of averages computed from carefully taken individual data.*



RIGHT LATERAL VIEW OF THE SKULLS OF *X. XANTHOCEPHALUS*,
♂ ♂, ($\times 2$).

pp, pars plana; *na*, nasal; *mxp*, maxillo-palatine; *v*, vomer; *mx*, maxillary; *pl*, palatine; *pt*, pterygoid; *ms*, manubular sesamoid; *q*, quadrato.

* Since publishing the above in 'Science,' Mons. Alfred Grandidier, Memb. de l'Institut de Paris, writes me from Paris that he fully agrees with me in the marked variation that may take place in the skulls of the same species of birds, and invites my attention to figures 1-12 of plate 156a of his 'Birds of Madagascar'; and to figures 2 and 4 of plate 18 of his 'Mammalia of Madagascar.' I regret to say that this well-known work is not before me at the present time.

At the first meeting of the A. O. U. Committee on the Classification and Nomenclature of North American Birds I was honored by having the request made of me by the Committee to make a report upon the entire structure of *Chamæa fasciata* with the view of throwing, if possible, some light on its position in the system, and although that is several years ago, all my continued efforts failed in securing the necessary material to the carrying out of such a task. Recently, however, through the great generosity of Mr. G. Frean Morcom, of Chicago, and the timely assistance of Mr. F. Stephens, of San Bernardino, Cal., thanks to both, I can now report that I have in my possession for the aforesaid piece of work, an exceptionally fine series of alcoholic specimens of the *Chamæa fasciata*. During the years of waiting I have not been idle myself, and I have alcoholics of many desirable forms to compare with our subject, but still many are among my desiderata and will be acknowledged with gratitude, as well as duly so in the Memoir, if sent to me. Such a bird as *Accentor modularis** would come into play, perhaps, or some of the Old World forms of the Timeliidæ; any species of the genus *Lophophanes* will be acceptable, and Wrens and Tits generally. Just as soon as other unfinished work will permit me, I will now put forth my best endeavor to render a full account of the structure of this interesting species, and that will fall within the year, — the powers permitting.

Very respectfully and faithfully yours,

R. W. SHUFELDT.

Fort Wingate, N. Mexico, May 21, 1887.

'Scarcity of Adult Birds in Autumn.'

TO THE EDITORS OF THE AUK:—

Sirs: In a late (January) number of 'The Auk' Mr. Beckham asks for an explanation of the fact that out of three hundred and sixty-seven birds collected by him in Colorado and Kentucky between Sept. 1 and Nov. 22, 1886, three hundred and forty-eight were birds of the year, leaving only nineteen adults, of which eleven "were species resident where collected." The question thus raised was anticipated and answered in my recent paper on Bird Migration † by the following:

"IV. That with most North American birds the majority of adults either precede or accompany the first flights of young in the autumnal migration I am convinced by a long field experience, during which, moreover, I have failed to find any proof that the young of a single species precede the old. My evidence in support of this statement is of two kinds: (1) Observations made on the departure of birds from their breeding stations. (2) Observations on flights arriving from localities north of the stations of observations. The first class of evidence, in my opin-

* Professor Alfred Newton, F. R. S., writes me from Cambridge University that he has had collected for me a full series of this bird, for which my most sincere thanks are gratefully tendered.

† Mem. Nutt. Orn. Club, No. I, March, 1886, pp. 15-16.